TSAGOLOV, N.A., prof., doktor ekon.nauk: BLYUMIN, I.G., prof., doktor ekon.nauk [deceased]; RUMYANTSEV, A.M., prof.; KORNIYENKO, A.A., dotsent, kand.ekon.nauk; SHNEYERSON, A.I., prof., doktor ekon.nauk; LIF, Sh.B., prof., doktor ekon.nauk; SHVEDKOVA, G.M., kand.ekon.nauk; FISHEVSKIY, Yu.K.; DVORKIN, I.N., doktor ekon.nauk; SIDOROV, I.F.; KHAFIZOV, R.Kh., kand.ekon.nauk; NIKOLAYEV, A.B., kand.ekon.nauk; AVRAMCHUK, F.P., kand.ekon.nauk; AL'TER, L.B., doktor ekon.nauk; BOYARSKIY, A.Ya., prof., doktor ekon.nauk; BREGEL', E.Ya., prof., doktor ekon.nauk; ARZUMANYAN, A.A.; VOLODIN, V.S., dotsent, kand.ekon.nauk; MIKSHA, L.S., kand.ekon.nauk; BUNKINA, M.K., dotsent, kand.ekon.nauk; YEVREYSKOV, A.V., kand.ekon.nauk; FADEYEVA, T.A., kand.ekon.nauk; KOLGANOV, M.V., prof., doktor ekon.nauk; KHROMUSHIN, G.B., kand.ekon.nauk; MOSHENSKIY, M.G., kand.ekon.nauk; IVANOV, N.N., kand.ekon.nauk; GUTTSAYT, M.G., dotsent, kand.ekon.nauk; ABOLTIN, V.Ya., prof., doktor ekon.nauk; KOLLONTAY, V.M., kand.ekon.nauk; GLUKHAREV, L.I., kand.ekon.nauk; POKROVSKIY, A.I., kand.ekon.nauk; DADASHEV, G.A., dotsent, kand.ekon.nauk; ALESHINA, I.V., kand.ekon.nauk; ZHAMIN, V.A., dotsent, kand.ekon.nauk;

(Continued on next card)

TSAGOLOV, N.A.--(continued) Card 2.
KOZLOV, A.P.; TIMOFEYEV, T.T., kand.istor.nauk; ALEKSEYEV, A.M., dotsent, kand.ekon.nauk; FILATOVA, Ye.M., dotsent, kand.ekon.nauk. Prinimali uchastiye: VOLKOV, F.M., kand.ekon.nauk; KHROMUSHIN, G.B.; VOZNESENSKIY, L.A., nauchnyy sotrudnik. SPERANSKAYA, L., red.; CHEPELEVA, O., tekhn.red.

[Criticism of present-day bourgeois, reformist, and revisionist economic theories] Kritika sovremennykh burzhuaznykh, reformistskikh i revizionistskikh ekonomicheskikh teorii. Pod red. N.A.TSagolova. Moskva, Izd-vo sotsial'no-ekon.lit-ry, 1960. 500 p. (MIRA 13:5)

1. Moscow. Universitet. 2. Chlen-korrespondent AN SSSR (for Arzumanyan).

(Economics)

PASHKOV, A.I.; KARATAYEV, N.K., doktor ekon.nauk; POLYANSKIY, F.Ya., doktor istor.nauk; TSAGOLOV, N.A., doktor ekonom.nauk; BEZMAN, R.R., kand.ekonom.nauk; PRIKAZCHIKOVA, Ye.V., kand.ekonom.nauk; SHUKHOV, N.S. Prinimali uchastiye: KOSHELEVA, Ye.F., mladshiy nauchnyy sotrudnik; KHUTORNA, V.F., mladshiy nauchnyy sotrudnik; CHIZHOVA, L.G., mladshiy nauchnyy sotrudnik; VILENSKAYA, V.S., starshiy nauchno-tekhnicheskiy sotrudnik; ZHUK, I., red.; MOSKVINA, R., tekhn.red.

[History of Russian economic thought] Istoriia russkoi ekonomicheskoi mysli. Pod red. A.I.Pashkova i N.A.TSagolova. Moskva, Izd-vo sotsial'no-ekon.lit-ry. Vol.2. [Epoch of premonopolistic capitalism] Epokha domonopolisticheskogo kapitalizma. Pt.2. 1960. 676 p. (MIRA 13:11)

1. Akademiya nauk SSSR. Institut ekonomiki. 2. Chlen-korrespondent AN SSSR (for Pashkov). 3. Institut ekonomiki AN SSSR (for Kosheleva, Khutorna, Chizhova).

(Economics)

KARATAYEV, N.K., doktor ekon.nauk; POLYANSKIY, F.Ya., doktor istor.nauk;
TSAGOLOV, N.A., doktor ekon.nauk; VLASOV, N.A., kand.ekon.nauk
[deceased]; KORNIYENKO, A.A., kand.ekon.nauk; MOROZOV, F.M.,
kand.ekon.nauk; PLITSYNA, K.T., kand.ekon.nauk; PODOROV, G.M.,
kand.ekon.nauk; CHUBUK, I.F., kand.ekon.nauk; PASHKOV, A.I., red.;
ZHUK, I., red.; MOSKVINA, R., tekhn.red.

[History of Russian economic thought] Istoriia russkoi ekonomicheskoi mysli. Pod red. A.I.Pashkova i N.A.TSagolova. Moskva, Izd-vo sotsial'no-ekon.lit-ry. Vol.2. [Epoch of premonopolistic capitalism] Epokha domonopolisticheskogo kapitalizma. Pt.1. 1959. 526 p. (MIRA 13:5)

1. Akademiya nauk SSSR. Institut ekonomiki.
(Economics)

CHUKHNO, A.A.; KOZLOV, G.A.; KASHCHENKO, A.I.; AGANBEGYAN, A.G.; VOLKOV, M.I.; ZHUKOVSKIY, Ya.M.; NAGORNYY, A.F.; TSAGOLOV, N.A.; KOVALEVA, M.F.; PAVLOV, P.M.; ATLAS, M.S.; KATS, A.I.; NAROVLYANSKIY, N.G.; ANCHISHKIN, I.A.; SPIRIDONOVA, N.S.; KRONROD, Ya.A.; SULIMOV, I.A.; BREGEL', [illegible]; [illegible]; VARTANYAN, [illegible]; [illegible]; [illegible]

Structure and content of the course on the economics of socialism. Vop. ekon. no.6:57-143 Je '62. (MIRA 15:6)

1. Kiyevskiy gosudarstvennyy universitet (for Chukhno). 2. Vysshaya partiynaya shkola pri TSentral'nom komitete Kommunisticheskoy partii Sovetskogo Soyuza (for Kozlov, Volkov, Zhukovskiy). 3. Yaroslavskiy gosudarstvennyy pedagogicheskiy institut (for Kashchenko, Narovlyanskiy, Sulimov). 4. Institut ekonomiki i organizatsii promyshlennogo proizvodstva Sibirskogo otdeleniya AN SSSR (for Aganbegyan). 5. Institut povysheniya kvalifikatsii prepodavateley obshchestvennykh nauk pri Kiyevskom gosudarstvennom universitete (for Nagornyy). 6. Moskovskiy gosudarstvennyy universitet (for TSagolov, Spiridonova). 7. Akademiya obshchestvennykh nauk pri TSentral'nom komitete Kommunisticheskoy partii Sovetskogo Soyuza (for Kovaleva). 8. Leningradskiy finansovo-ekonomicheskiy institut (for Pavlov). 9. Moskovskiy finansovyy institut (for Atlas). 10. Nauchno-issledovatel'skiy institut truda (for Kats). 11. Institut ekonomiki AN SSSR (for Anchishkin, Kronrod). 12. Moskovskiy ekonomiko-statisticheskiy institut (for Bregel'). 13. Moskovskiy energeticheskiy institut

(Continued on next card)

CHUKHNO,---(Continued) Card 2.

(for Rozenman). 14. Armyanskiy sel'skokhozyaystvennyy institut (for Vartanyan). 15. Permskiy politekhnicheskiy institut (for Novikov). 16. Chlen-korrespondent Akademii nauk SSSR, glavnyy redaktor zhurnala "Voprosy ekonomiki" (for Gatovskiy).

(Economics--Study and teaching)

TSAGOLOV, N.A., prof., red.; POTAPOV, KH.Ye., red.; PONOMAREVA, A.A.,
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[Developing collective farm property during the period of the large-scale building of communism] Razvitie kolkhoznoi sobstvennosti v period razvernutogo stroitel'stva kommunizma. Pod red. i so svtup. stat'ei N.A.TSagolova. Moskva, Izd-vo ekon.lit-ry, 1961. 446 p. (MIRA 14:12)

1. Moscow. Universitet. Kafedra politicheskoy ekonomii.
(Collective farms) (Property)

VASIL'YEVA, A.N.; GAMAYUNOVA, A.P.; GOLOSKOKOV, V.P., kand. biol. nauk; DMITRIYEVA, A.A.; KARMYSHEVA, N.Kh.; KUBANSKAYA, Z.V., kand. biol. nauk; ORAZOVA, [illegible].; PAVLOV, N.V., akademik; ROLDUGIN, I.I.; SEMIOTROVKHEVA, N.L.; TEREKHOVA, V.I.; FISYUN, V.V.; TSAGOLOVA, V.G.; SUVOROVA, R.I., red.; IVANOVA, E.I., red.; BYKOV, B.A., red.

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1. Akademiya nauk Kaz.SSR (for Pavlov). 2. Chlen-korrespondent AN KazSSR (for Bykov).

TSAGARELI, N.V., kand. tekhn. nauk

Device for determining the density of the filling on an operating loom. Tekst. prom. 22 no.7:36-37 Jl '62. (MIRA 17:1)

1. Zaveduyushchiy kafedroy tkachestva Gruzinskogo politekhnicheskogo instituta.

TSAGAREYSHVILI, A.V. (Leningrad)

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ZUL', N.M., kand.tekhn.nauk; OKUN', S.S., kand.tekhn.nauk;
SERGEYENKOV, B.N., inzh.; TSAGAREYSHVILI, S.A., inzh.

Smoothly regulated booster autotransformer for rural power distribution networks. Elektrotekhnika 35 no.3:25-27 Mr '64.
(MIRA 17:5)

KOSTIN, K.A., inzh.; BOKHAN, I.T., inzh. Prinimali uchastiye: TSIKUN,D.S., tekhnik; TSAGOYKO, N.V., tekhnik; FILIN, A.G., red. izd-va; GALAKTIONOVA, Ye.N., tekhn. red.

[Technical charts for the maintenance of the M-21A automobile, "Volga"] Tekhnologicheskiye i postovye karty tekhnicheskogo obsluzhivaniya avtomobilya M-21 "Volga." Moskva, Avtotransizdat, 1961. 150 p. (MIRA 15:1)

1. Moscow. Nauchno-issledovatel'skiy institut avtomobil'nogo transporta. Leningradskiy filial. 2. Otdel tekhnicheskogo obsluzhivaniya i remonta Leningradskogo filiala Nauchno-issledovatel'skogo instituta avtomobil'nogo transporta (for Kostin, Bokhan).
(Automobiles—Maintenance and repair)

TSAGURISHVILI, G.N. Cand Agr Sci -- (diss) "Certain problems ~~questions~~ ~~to~~ of agricultural ~~science~~ engineering of the white vetch during its stubble-field cultivation ~~as~~ and for green ~~vegetable~~ fertilizer under winter wheat." Tbilisi, Pub House of Acad Sci G~~A~~SSR, 1958, 19 pp. (Min of Agr USSR. ~~Gruzinskiy~~ Georgian Order of Labor Red Banner Agr Inst) 100 copies (KL, 21-58, 92)

TSAGURASHVILI, A. I.

: USSR

: Soil Science. Organic Fertilizers.

: [illegible], No. [illegible] 1958, No. 10468

: Tsagurishvili, A. I.

: Scientific-Research Institute of Agriculture, Georgian SSR

: Certain Questions on the Agrotechny of [illegible] vine (Lathyrus sativus) as a Stubble Crop Grown for Green Fertilizer under Winter Wheat

: Mitsatmokmedebis sametsnierokvlevithi institutis shromebi. Sakartvelos SSR, Tr. N.-i. in-ta zemledeliya, Gruz SSR, 1958, 10, 23-[illegible]

No abstract.

: 1/1

18

TSAGURISHVILI, V. A.

Textile industry and fabrics-Study and teaching

For the training of a highly skilled labor force. Tekst. prom., No. 2, 1952.

9. Monthly List of Russian Accessions, Library of Congress, March 1953. Unclassified.

TSKHUTRISHVILI, V. A.

Textile industry and fabrics - Study and teaching

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Monthly List of Russian Accessions, Library of Congress, March 1952. UNCLASSIFIED.

TSAGURIYA, M.

TSAGURIIA, M. 15 let tiazheloi promyshlennosti SSSR. Moskva, Izd-vo Narkomat tiazh. promyshl., 1932. 119 p.

DLC: Unclass.

SO: LC, Soviet Geography, Part I, [illegible]/51, Uncl.

1. B. A. TSAIG
2. USSR (600)
4. Artillery ammunition

9. Monthly List of Russian Accessions, Library of Congress, ____________ 1953, Uncl.

TSAI

TSAIG, M.

Barrage balloons. 7 p. (Gt. Britain. Ministry of Aircraft Production. RTP Tr. 1289)

Trans. from the Russian original publ. in Samolet, 1940, v. 17, no. 23/24, p. 30-32.

NNIAS

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955.

ANDRIANOV, Yuriy Aleksandrovich; TSAGERIYA, Aleksandr Viktorovich

[Mechanization of construction and road operations] [Mekhanizatsiia stroitel'nykh i dorozhnykh rabot. Tbilisi, TSodna] 1964. 258 p. [In Georgian] (MIRA 18:7)

TSAKADZE, D.S.; ANDRONIKASHVILI, E.L., akademik.

[illegible]

[illegible]

SOV/53-67-4-7/7

[illegible]-Union Conference on the Physics of Low
[illegible] [illegible]-ye Vsesoyuznoye soveshchaniye po fizike nizkikh
[illegible]

[illegible] [illegible] nauk, 1959, Vol 67, Nr 4, pp 743-750

[illegible] took place from October 27 to November 1 at
[illegible] was organized by the Otdeleniye fiziko-matemati-
[illegible] nauk Akademii nauk SSSR (Department of Physico-
[illegible] Sciences of the Academy of Sciences, USSR),
[illegible] nauk Gruzinskoy SSR (Academy of Sciences,
[illegible] SSR), and the Tbilisskiy gosudarstvennyy uni-
[illegible] Stalina (Tbilisi State University imeni Stalin).
[illegible] was attended by about 300 specialists from
[illegible] Moscow, Khar'kov, Kiyev, Leningrad, Sverdlovsk, and
[illegible] as well as by a number of young Chinese scientists
[illegible] working in the USSR. About 50 lectures were deliver-
[illegible] were divided according to research fields. - I. Liquid
[illegible] reports were delivered by the researchers of the
[illegible] nizkikh temperatur TGU (Laboratory for Low Tem-
[illegible] of Tbilisi State University) under the supervision
[illegible]: [illegible], Yu. G. [illegible]
[illegible] spoke about the investigation of the damp-
[illegible] oscillations of a single disk in He II in
[illegible] on the rotation rate. G. A. [illegible] spoke
[illegible] influence exercised by the state of the disk sur-
[illegible] rate and on the damping of its oscillations
[illegible] range. V. P. Peshkov (IFP AN SSSR -
[illegible] for Physical Problems AS USSR) spoke about further
[illegible] of the boundary between superfluid and [illegible]
[illegible] helium (discovered by himself) in a heat flow.
[illegible] characterizes the density- and temperature jump
[illegible], V. N. Zinov'yeva and V. P. Peshkov spoke abou-
[illegible] at extremely low temperatures (down to 0.3°K),
[illegible] attained by the method of the evacuation of

[illegible]. Kuang, Wei-yen investigated in the interval
[illegible] the phenomenon of the temperature jump (dis-
[illegible] P. L. Kapitsa in 1941) on the boundary of a solid
[illegible] (Cu) by means of He II; for the thermal resistance
[illegible] law holds, where n=2.6±0.1. Zinov'yeva and
[illegible] investigated, among other things, also the phase
[illegible] He^3 dissolved in He^4 (20 - 89%). V. L. Ginzburg
[illegible] a report on the phenomenological theory of He II
[illegible] of the λ-point in consideration of quantum
[illegible] the theory was developed by himself and by L. P.
[illegible]. [illegible] (IAE AN SSSR - Institute for
[illegible] Energy, AS USSR) delivered a short report on the
[illegible] phase transition in liquid He^4. I. M. Lifshits
[illegible] (KhFTI AN USSR - Khar'kov Physico-techni-
[illegible] AS UkrSSR) investigated the melting of solid

[illegible] basis of Landau's theory of the Fermi-fluid and
[illegible] melting pressure as a function of temperature has
[illegible] at 0.3°K (Pomeranchuk-effect). The comprehensive
[illegible] was held under the supervision of P. L. Kapitsa.-

24 (0)

AUTHORS: Andronikashvili, E. L., Tsakadze, D. S. SOV/56-37-1-60/64

TITLE: The Propagation of Oscillations Along Vortex Filaments in Rotating Helium II (Rasprostraneniye kolebaniy vdol' vikhrevykh nitey vo vrashchayushchemsya gelii II)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 37, Nr 1, pp 322 - 323 (USSR)

ABSTRACT: The following "Letter to the Editor" is the reproduction of a lecture delivered at the 5. All-Union Conference for the Physics of Low Temperatures (Tbilisi 1958). The authors carried out experiments with rotating He II and found that the results obtained by these experiments confirm Onsager's hypothesis as well as Feynman's theory, which is based upon the former, and that they also agree with the experimental results obtained by Hall (Refs 1-3). For the purpose of interpreting these experiments the authors assumed that transversal elastic waves propagate along the vortex filaments (experiment by Hall, observation of periodic frequency variations of the oscillations of a thin disk under rotating He II). Deviating from Hall, the authors measured the magnitude of the logarithmic damping decrement δ of the oscillations of the disk. The measuring method has al-

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[illegible]
[illegible]

[illegible] Figure 1 shows the results of measurements in form of a diagram (ordinate δ, abscissa: number of periods); measuring temperature: 1.38°K, rotation frequency $\omega = 55.10^{-3}$ sec^{-1}. The helium level above the surface of the disk varied rapidly as a result of the intense brightening (podsvechivaniye) (evaporation rate $3.6.10^{-2}$ mm/min). Figure 2 shows the same as figure 1, but after elimination of the level variation of the liquid on the disk, which in this case developed slowly (0.5 mm/sec). The curves obtained show that with a variation of the evaporation rate of the liquid on the disk, also the character of periodic damping varies. This may be explained by the assumption that in the case of oscillations of the disk, a standing transversal wave is formed in the vortex filaments. The distance between two adjoining resonances corresponds to a lowering of the level by 0.065 cm. The authors thank Yu. G. Mamaladze for discussions, and further T. M. Shul'ts, K. B. Mesoyed and I. M. Chkheidze for

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The Propagation of Oscillations Along Vortex Filaments in Rotating Helium II SOV/56-37-1-60/64

assisting in carrying out the experiments. There are 2 figures and 4 references, 3 of which are Soviet.

ASSOCIATION: Tbilisskiy gosudarstvennyy universitet (Tbilisi State University)

SUBMITTED: April 28, 1959

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SOV/56-37-2-40/56

24(8)

AUTHOR: Andronikashvili, E. L., Tsakadze, D. S.

TITLE: An Experimental Investigation of the Harmonic Oscillations of a Disk in Rotating Helium II

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 37, Nr 2(8), pp 562-564 (USSR)

ABSTRACT: This paper has been submitted at the All Union Congress on Low-temperature Physics, in Tbilisi, October 1958. Earlier investigations (Refs 1,2,3,4) took no account of the changes in the damping processes in rotating helium II. An apparatus has been developed by the authors, in which a transparent cup of organic glass (diameter 44 mm, filled with liquid helium) moved with an angular velocity of $\omega = 13.10^{-3}\text{sec}^{-1}$ to $\omega = 129.10^{-3}\text{sec}^{-1}$. A disk with a diameter of 30 mm and a thickness of 1 mm was suspended within the helium bath. This disk followed two motions simultaneously: 1) the rotation with a velocity equal to that of the cup and 2) a harmonic oscillation about an axis perpendicular to the disk plane and parallel to the generatrix of the cup. The determination of the logarithmic decrement of

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SOV/56-37-2-10/[illegible]

An Experimental Investigation of the Harmonic Oscillations of a Disk in Rotating Helium II

the disk oscillations is described. In helium II δ the decrement depends markedly upon the rotational speed. The curve describing the relative increase of the damping effect due to the rotation as dependent upon the rotational frequency passes through a maximum both for a rough and for a smooth disk. The course of the slope of the curve after the maximum differs for the rough and the smooth disk, the sign of the curvature also being different. For a smooth disk the curve is parallel to the abscissae near the coordinate origin. This speaks in favor of a gliding of the vortexes relatively to the polished surface, that is the vortexes do not adhere to the surface. In a diagram the temperature course of the maximum increase of the damping (for $\omega = 55.10^{-3}$ sec^{-1}) of a rough disk is shown. The increase of the damping due to the subtraction of the superfluid component amounts in the entire temperature interval to less than 65-70% of the damping caused by the friction of the normal component. For the purpose of explaining the particularities of the curves discussed herein Yu. G. Mamaladze proposed to replace the

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An Experimental Investigation of the Harmonic Oscillations of a Disk in Rotating Helium II

linear dependence of the quantity $(\delta - \delta_H/\delta_H)$ upon ω (which applies to the first section of the curve) by a more complicated dependence, when the distance between neighboring vortexes approaches their effective diameter. The authors express their gratitude to Yu. G. Mamaladze and S. G. Matinyan for valuable suggestions and to L. A. Zamtaradze, T. G. Shul'ts, and I. M. Chkheidze for their help in performing the experiments. There are 2 figures and 5 references, 4 of which are Soviet.

ASSOCIATION: Tbilisskiy gosudarstvennyy universitet (Tbilisi State University)

SUBMITTED: April 28, 1959

Card 3/3

TSAKADZE, D.S., (Tbilisi) MAMALADZE, Yu.G., MATINYAN, S.G., MESOYED, K.B..

"On the Dynamics of an Oscillatory Motion in Perfect Rotating Fluids Theory and Experiment."

report presented at the First All-Union Congress on Theoretical and Applied Mechanics, Moscow, 27 Jan - 3 Feb 1960.

[illegible]

AUTHORS: Andronikashvili, E. L., Mamaladze, Yu. G., Tsakadze, D. S.

TITLE: On the measurement of the logarithmic damping decrement.

SOURCE: Akademiya nauk Gruzinskoy SSR. Institut fiziki. Trudy, [illegible] 49-66. (In Georgian, with 2-1/2 page Russian résumé.)

TEXT: A difficult problem has arisen in connection with the hydro[illegible] superfluid media, namely, the determination of the damping of tors[illegible] of a disk superimposed on its uniform rotation about its own axis. A [illegible] posed to tie the oscillatory amplitude to the time elapsed between the [illegible] pencil of light through two fixed points; the method is equally applica[illegible] [illegible]rement of the damping decrement in oscillations of any other type. [illegible] system is attached to the usual rotary suspension system of the experim[illegible] the reflected pencils of light are picked up by two photomultipliers located [illegible] rically with respect to the equilibrium position. The transit time elapsed [illegible] the two photomultipliers is measured electronically; the time increases as [illegible] [illegible] is damped, and the logarithmic damping decrement is found from the rela[illegible] ship between the transit times, (τ), the number of half-periods, (n), and the [illegible] latory period T which, in simplified form (for a symmetrical arrangement of [illegible] photomultipliers and weak damping) reads:

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$$\ln [illegible] (\pi \tau_1 / T [illegible]) = [illegible] (\pi \tau_1 / T) + \delta n.$$

If the left-hand term is plotted against n, the logarithmic decrement [illegible] simply [illegible] the slope of that line. The photomultipliers [illegible] are of the ФЭУ-25 (FEU-25) type, the counting device is of the [illegible] (PS [illegible]) type, and a quartz-stabilized sonic generator is employed. [illegible] circuitry of the amplifier, the chronometer-counter, and the sonic generator [illegible] shown. The first pulse produced by the transit of the light [illegible] the photomultiplier opens an [illegible] standard-frequency signals [illegible] device. The next transit past the other photomultiplier provides [illegible] generator frequency and the measured number of transit [illegible] time [illegible] between two signals. The [illegible] actually [illegible]. The system [illegible] calibration [illegible] of the [illegible] of water and of the normal [illegible] liquid He^{4} were fully consistent with data cited in the literature. There [illegible] Soviet reference (Andronikashvili, E. L., ZhETF, v. 18, 19[illegible]) [illegible] translation of Enzore, V., and Soods, M., Electronic [illegible]

ASSOCIATION: No [illegible]

Card 2/2

Tsakadze, D.S

82029
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B006/B014

24.5600

AUTHORS: **Tsakadze, D. S., Chkheidze, I. M.**

TITLE: Measurement of the Logarithmic Decrement of Damping of a Hollow Cylinder in Rotating Helium II

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 38, No. 2, pp. 637 - 638

TEXT: Superfluidity studies performed by E. L. Andronikashvili and one of the writers of the present "Letter to the Editor" have shown that the logarithmic decrement of damping δ of a disk moving in rotating helium II passes through a maximum. This phenomenon is ascribed to change in the elastoplastic properties of helium II. In accordance with this hypothesis the superfluid component of slowly rotating He II may be regarded as a system of a few not interacting vortex filaments or, in the case of high velocities, as a uniform rope. It was further assumed that the rotational He II must have different properties of fluidity, depending on whether the body surface therein moved perpendicular or parallel to the vortex filaments. In order to verify these assumptions, the authors made experiments

Card 1/3

69027

Measurement of the Logarithmic Decrement of Damping of a Hollow Cylinder in Rotating Helium II

S/056/60/038/02/45/061
B006/B014

with a cylinder of organic glass (24.06 mm wide, 49.80 mm high, and 0.49 mm thick) on which graduation lines were marked out in intervals of 5.0 mm each. The cylinder was immersed into the rotational He II to a different extent, and the experimental setup described in Refs. 4, 5, and 7 was used for the purpose. Measurements of the fluidity of He II furnished the same results as obtained by Andronikashvili with a disk (Ref. 8). Experiments performed by the authors at three different temperatures were in agreement with a formula (2) given by Yu. G. Mamaladze and S. G. Matinyan (Ref. 9) for the dependence of the decrement of damping on the depth of immersion, viz., agreement was found within the limits of error. The curve $\delta(\omega)$ showed a linear course, and the peak previously found was not observed. It is thus proved that the properties of fluidity of rotational He II depend on the direction in which the damping is measured. The authors thank the above-mentioned scientists for their interest and discussions. There are 1 figure and 10 references: 7 Soviet and 3 English.

ASSOCIATION: Tbilisskiy gosudarstvennyy universitet (Tbilisi State University)

Card 2/3

82029
S/056/60/038/02/45/061
B006/B014

Measurement of the Logarithmic Decrement of Damping of a Hollow Cylinder in Rotating Helium II

SUBMITTED: September 25, 1959

Card 3/3

MESOYED, K.B.; TSAKADZE, D.S.

Experimental study of dissipative processes in a steadily rotating classical fluid by a method based on the damping of an oscillating disk. Soob.AN Gruz.SSR 26 no.2:145-148 '61. (MIRA 14:4)

1. Tbilisskiy gosudarstvennyy universitet im. I.V.Stalina, Predstavleno akademikom E.L.Andronikashvili.
(Fluid dynamics) (Vibrations)

S/053/61/073/001/001/004
B006/B056

AUTHORS: Andronikashvili, E. L., Mamaladze, Yu. G., Matinyan, S. G., Tsakadze, D. S.

TITLE: The Properties of Quantized Vortices Occurring in Rotating Helium II

PERIODICAL: Uspekhi fizicheskikh nauk, 1961, Vol. 73, No. 1, pp. 3 - 40

TEXT: A detailed review is given of experimental and, above all, theoretical investigations on the hydrodynamics of oscillations of solids suspended in rotating He II. Progress achieved recently in this field is of special importance for problems of superfluidity. The present review gives no new material but merely an explanation of the present stage of research work in this field, the authors mainly discussing their own publications and the results of their own investigation. The paper consists of four parts. The first part deals with the transcritical properties connected with the rotation of He II, the superfluid and normal components of He II, the hypothesis by Onsager-Feynman on the formation of vortex filaments and the variational problem connected herewith, the

Card 1/3

The Properties of Quantized Vortices
Occurring in Rotating Helium II

S/053/61/073/001/001/004
B006/B056

velocity distribution in moving vortices of a superfluid liquid, and the experiments by Hall and Vinen (measurement of the circulation quantum) The second part deals with the oscillations of a solid in rotating He II; the following problems are discussed in detail: results obtained by Hall and Vinen, the energy properties of vortex systems, experimental and theoretical results obtained by Andronikashvili and Tsakadze, a disk in rotating He II, the effective density of the superfluid component as a function of the rate of rotation; comparison of the results obtained by Hall with those of scientists of the Tbilisi group (the authors); study of the damping of oscillations of a solid in rotating He II, results obtained by experimental investigations carried out at the Cryogenics Laboratory of Tbilisskiy universitet (Tbilisi University); the logarithmic damping decrement of oscillations as a function of [illegible] various conditions, temperature dependence of damping, dependence of the rate upon damping and oscillation frequency, resonance phenomena, investigation of the rate dependence of damping of torsional oscillations, etc. Part 3 deals with the hydrodynamics of rotating helium II; after an introduction several results obtained by theoretical investigations by Hall

Card 2/3

The Properties of Quantized Vortices
Occurring in Rotating Helium II

S/053/61/073/001/001/004
B006/B056

I. L. Bekarevich and I. M. Khalatnikov, as well as by Yu. G. Mamaladze and S. G. Matinyan are discussed. In the fourth part, the theory of small oscillations of axially-symmetric bodies in rotating He II is explained. The hydrodynamic equations for the case of small oscillation amplitudes are linearized, and methods of solution are discussed. Several special cases are discussed. I. P. Kaverkin, L. D. Landau, P. L. Kapitsa, I. M. Chkheidze, Kiknadze and Tkemaladze are mentioned. There are 17 figures and 35 references: 22 Soviet, 2 Dutch, 5 US, 1 Italian, and 5 British.

Card 3/3

ACCESSION NR: AT3012967. S/2749/62/008/000/0209/0212

AUTHORS: Andronikashvili, E. L.; Tsakadze, D. S.

TITLE: Measurement of the frequency and damping of oscillations of a light disc immersed in rotating He-II

SOURCE: AN GruzSSR. Institut fiziki. Trudy*, v. 8, 1962, 209-212

TOPIC TAGS: superfluidity, helium II, superfluidity measurement, rotating disc method, disc frequency, disc oscillations, damping of disc oscillations, vortex filaments, quantum liquids

ABSTRACT: Axial-torsional oscillations of a disc immersed in rotating He-II and rotating uniformly at the same speed as the helium were investigated. This is a continuation of earlier work by the authors (Soobshcheniya AN GSSR, XX, 6, 688, 1958 and ZhETF, v. 37, (7), 322, 1959), but in the earlier investigations the damping or the frequency was negligible in one case and the frequency was negli-

Card 1/3

ACCESSION NR: AT3012967

gible in the other. The instrument developed for this purpose is described elsewhere (Trudy IF, AN GSSR v. 7, 64, 1960). The damping tests confirm the earlier results. The frequency variation of the disc as a function of the speed first increases linearly and then tends to saturation. It is pointed out as remarkable that the bend of the curve occurs in the frequency region corresponding to maximum damping. The curve for the frequency variation deviates from the theoretical at higher frequencies (and the discrepancy is attributed to the slipping of the vortex filaments). The experimental data confirm the assumption that the slip increases at velocities at which the effective radii of the vortices overlap, and the decrease in damping is due to the increased slipping of the vortices because of the collectivization of their oscillations. "The authors are grateful to K. B. Mesoyed and G. M. Gudzhabidze for help with the measurements and to Yu. G. Mamaladze and S. G. Matinyan for a discussion of the results of the experiment." Orig. art. has: 1 figure and 1 formula.

Card 2/3

ACCESSION NR: AT3012967

ASSOCIATION: Institut fiziki AN GruzSSR (Physics Institute, AN GruzSSR)

SUBMITTED: 00 DATE ACQ: 04Oct63 ENCL: 00

SUB CODE: PH NO REF SOV: 008 OTHER: 001

Card 3/3

TSAKADZE, D.S.; MESOYED, K.B.

Use of hollow cylinders in studying the viscous properties of liquids. Trudy Inst.fiz.AN Gruz.SSR 8:213-219 '62.
(MIRA 16:2)

(Liquids) (Viscosity)

Determination of the coefficient... S/056/62/042/004/010/037
B163/B102

The temperature dependence of B and B' is already known for He II. B" is determined experimentally at 1.86°K from the damping of the vertical oscillations of a hollow cylinder immersed in a rotating cup filled with He II. The cylinder can at the same time rotate and perform vertical oscillations along the axis of rotation. From the experimental result that the damping does not depend on the rotation rate it is concluded that B" vanishes within the limits of experimental accuracy (i.e. is smaller than $\frac{1}{40}$ B). This result is important insofar as the hydrodynamic equations of rotating He II are compatible with the law of vortex conservation only if B" = 0. There is 1 figure.

ASSOCIATION: Institut fiziki Akademii nauk Gruzinskoy SSR (Institute of Physics of the AS Gruzinskaya SSR)

SUBMITTED: November 15, 1961

Card 2/2

S/124/62/000/007/013/027
D234/D308

AUTHORS: Andronikashvili, E. and Tsakadze, D.

TITLE: Hydrodynamics of rotating helium II

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 7, 1962, 45, abstract 7B291 (Tr. Tbilissk. un-ta, 1960, 86, 1-43)

TEXT: The authors describe experimental investigations of viscous properties of quantum and classical rotating liquids, and the results of theoretical investigations of the same problem. Using an eleastically suspended disc, the authors found that the dependence of viscous properties on the velocity of rotation in helium II differ essentially from the same dependence in classical liquids. Measurements carried out with the aid of a hollow cylinder submerged in rotating quantum liquid showed that such a liquid has space anisotropy of viscous properties. Besides, a shear modulus in helium II and the possibility of propagation of elastic waves along vortex threads formed in rotating helium II were found. All these experimental facts agree well with the Onsager-Feynman theory

Card 1/2

Hydrodynamics of rotating ...

S/124/62/000/007/013/027
D234/D308

of presence of vortex threads penetrating the liquid in helium II. The results of experiments with elastically suspended disc and cylinder submerged in quantum and classical rotating liquid also agree with the theoretical data of Yu. G. Mamaladze and S. G. Matinyan, who solved the corresponding hydrodynamic problems. 26 references. /̲ Abstracter's note: Complete translation. _7

Card 2/2

TSAKADZE, D. S.

"Determination of the coefficient of mutal friction between the superfluid and normal components along vortex lines"

report to be submitted for the 8th Intl. Conf. on Low Temperature Physics (IUPAP) London, England, 16-22 Sep 62.

TSAKADZE, D.S.

Determination of the coefficient of mutual friction between the superfluid and normal components along vortex lines. Zhur.eksp.i teor.fiz. 42 no.4:985-987 Ap '62. (MIRA 15:11)

1. Institut fiziki AN Gruzinskoy SSR.
(Superfluidity) (Helium II) (Friction)

41146
S/056/62/043/004/060/061
B104/B186

24.5200

AUTHORS: Andronikashvili, E. L., Tsakadze, Dzh. S., Bablidze, R. A.

TITLE: Study of rotated He II near its λ-point using the method of secondary sound

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 4(10), 1962, 1562-1563

TEXT: H. E. Hall and W. F. Vinen (Proc. Roy. Soc., A 238, 204; 215, 1956) showed that the establishment of a steady motion in He II on transition from rotated He I into rotated He II (i.e., slower formation of Onsager-Feynman vortices) can be studied by reference to the scattering of secondary sound waves from the vortices. The following experiment was made on liquid He contained in the cavity between two coaxial cylinders (ring-resonator). This resonator can be rotated about its axis of symmetry. The emitter and the detector for secondary sound were installed on the inner cylinder. A special device enabled the resonator to be rotated uniformly. The emitter was fed by a highly stabilized audio frequency generator. The signals received at the

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S/056/62/043/004/060/061
B104/B186

Study of rotated He II near ...

detector were amplified and conducted into an ЭПП-09 (EPP-09) recorder. At temperatures around the λ-point (2.09 and 2.15°K) the resonance frequency was fixed in motionless He. The temperature of the He was then raised to 2.25°K by stopping evacuation. The resonator was set in motion (ω_0 = 0.98 sec^{-1}), and after 3-4 minutes He was again pumped out at a rate of 2 mm Hg per minute. The amplitude of secondary sound was measured at the moment of passing the previously fixed temperature. The same measurements were also made with motionless He. The measurements at a fixed temperature of 2.15°K showed that the maximum amplitude of secondary sound does not change, i.e., the formation of vortices slows down. The amplitude becomes lower when the temperature is raised somewhat above the λ-point and is then again reduced to 2.15°K without the resonator being stopped. The measurements at fixed temperature of 2.09°K give another picture: at the first reduction of temperature the amplitude of secondary sound becomes lower by 20%. The same reduction is reached after 1.5 to 2 minutes rotation at the same angular velocity when the He is kept at a temperature of approximately 2.09°K. The time that elapsed before this slowed down the formation of Onsager-Feynman vortices is estimated to have been 4 minutes (at 2.15°K).

Study of rotated He II near ...

S/056/62/043/004/060/061
B104/B186

ASSOCIATION: Institut fiziki Akademii nauk Gruzinskoy SSR (Institute of Physics of the Academy of Sciences Gruzinskaya SSR)

SUBMITTED: August 31, 1962

Card 3/3

MESOYED, K.B.; TSAKADZE, D.S.

Measuring the frequency and damping of the vibrations of a light disc suspended in rotating water. Trudy Inst. fiz. AN Gruz. SSR 9:147-149 '63. (MIRA 17:7)

TSAKADZE, D.S.

Formation of a macroscopic vortex in rotating liquid helium.
Trudy Inst. fiz. AN Gruz. SSR 9:151-152 '63. (MIRA 17:7)

TSAKADZE, Dzh. S.

Formation of a central eddy in a rotating mass of water. Soob. AN Gruz. SSR 30 no.1:25-28 Ja '63. (MIRA 17:1)

1. Institut fiziki AN Gruzinskoy SSR, Tbilisi. Predstavleno akademikom E.L. Andronikashvili.

TSAKADZE, Dzh.S.

Effective mutual friction between the superfluid and normal components of He II along the axis of rotation. Zhur. eksp. i teor. fiz. 44 no.1:103-104 Ja '63. (MIRA 16:5)

1. Institut fiziki AN Gruzinskoy SSR.
(Liquid helium) (Rotating masses of fluid)

TSAKADZE, Dzh.S.

Formation of a central vortex in rotating liquid helium. Zhur. eksp. i teor. fiz. 44 no.1:105-109 Ja '63. (MIRA 16:5)

1. Institut fiziki AN Gruzinskoy SSR.
(Liquid helium) (Rotating masses of fluid)

ANDRONIKASHVILI, E. L.; [illegible]

"[illegible] T λ."

report submitted for 9th Intl Conf on Low Temperature Physics, Columbus, Ohio, 31 Aug-4 Sep 64.

Inst of Physics, AS GSSR, Tbilisi.

ANDRONIKASHVILI, E.L.; BABLIDZE, R.A.; GUDZHABIDZE, G.V.; ISAKADZE, D.S.
(Tbilisi)

"Experimental study of generation and disappearance of vortices at a phase transition from a quantum liquid into a classical one and vice versa".

report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 January - 5 February 1964

MAMALADZE, YU.G.; MESGYED, K.B.; TSAKADZE, D.S. (Tbilisi)

"Penetrating viscous waves in a roting liquid".

report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 Jan - 5 Feb 64.

ACCESSION NR: AP4012536

mechanism described by the author elsewhere (ZhETF v. 44, 105, 1963). At a rotational velocity 51 sec^{-1} the vortex temporarily existing in He II has a circulation on the order of 10^4 quantum units and can generate 10^4 vortices of unit circulation as it decays. The configuration of the meniscus is presented in analytic form. "The author takes this opportunity to express deep gratitude to [illegible] for his attention and interest in this work and to [illegible] and [illegible] for helpful discussions." Orig. art. has: 5 figures and 1 formula.

ASSOCIATION: Institut fiziki AN GruzSSR (Physics Institute AN GruzSSR)

SUBMITTED: 06Aug63 DATE ACQ: 26Feb64 ENCL: 00

SUB CODE: PH NO REF SOV: 002 OTHER: 001

Card 2/2

ACCESSION NR: AP4012537 S/0056/64/046/001/0157/0161

AUTHORS: Andronikashvili, E. L.; Mesoyed, K. B.; Tsakadze, Dzh. S.

TITLE: Possible existence of Onsager-Feynman vortices at temperatures above the Lambda point

SOURCE: Zhurnal eksper. i teoret. fiz., v. 46, no. 1, 1964, 157-161

TOPIC TAGS: Superfluidity, Helium II, Onsager Feynman vortices, quantum liquid, Lambda point, rotating helium, liquid helium

ABSTRACT: The vortex properties of rotating helium at temperatures directly above the λ point, observed by the authors in 1958 (E. A. Andronikashvili, Dzh. S. Tsakadze, Yu. G. Mamaladze, and S. G. Matinyan, Paper at Fifth All-Union Conference on Low-Temperature Physics, Tbilisi, 1958) was rechecked by an improved procedure and with equipment of increased precision and uniformity of motion. It [illegible] that in the [illegible] there is no dependence of the damping on the

ACCESSION NR: AP4012537

SUBMITTED: 06Aug63

DATE ACQ: 26Feb64

ENCL: 00

SUB CODE: PH

NO REF SOV: 007

OTHER: 002

Card 3/3

ACCESSION NR: AP4012538 S/0056/64/046/001/0162/0164

AUTHOR: Zamtaradze, L. A.; Tsakadze, Dzh. S.

TITLE: Thermomechanical effect near the Lambda point in rotating liquid helium

SOURCE: Zhurnal eksper. i teoret. fiz., v. 46, no. 1, 1964, 162-164

TOPIC TAGS: helium, helium I, helium II, rotating helium, helium vortex, macroscopic helium vortex, Andrnikashvili vortex, Onsager Feynman vortex, quantum fluid, superfluidity, Lambda point, thermomechanical effect, Lambda point shift

ABSTRACT: In an experimental check on the conclusions of E. L. Andronikashvili and I. P. Kaverkin (ZhETF v. 28, 126, 1955) that superfluidity not only does not vanish under rotation but that its quantitative characteristics also remain unchanged, particularly near the λ point, the authors show that the temperature dependence of the fountain effect in rotating He II does not cause a shift of the λ point in the 2.17--2.23°K region, where hydrodynamic experiments (E. L. Andronikashvili, K. B. Mesoed, and Dzh. S. Tsakadze,

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ACCESSION NR: AP4012538

ZhETF v. 46, 157, 1964) detected the presence of vortex effects. The damping observed by Andronikashvili and Kaverkin must be attributed to relaxation effects. "The authors consider it their pleasant duty to thank E. L. Andronikashvili for suggesting the topic, for useful discussions, and interest in the work." Orig. art. has: 3 figures.

ASSOCIATION: Institut fiziki AN GruzSSR (Physics Institute, AN GruzSSR)

SUBMITTED:	06Aug63	DATE ACQ:	26Feb64	ENCL:	01
SUB CODE:	PH	NO REF SOV:	005	OTHER:	000

Card 2/3

ACCESSION NR: AP4019214 S/0056/64/046/002/0505/0507

AUTHOR: Tsakadze, Dzh. S.

TITLE: An attempt to detect an irrotational region in rotating He II

SOURCE: Zhurnal eksper. i teor. fiz., v. 46, no. 2, 1964, 505-507

TOPIC TAGS: liquid helium, helium II, rotating helium II, Onsager-Feynman vortices, irrotational region, superfluidity

ABSTRACT: Experimental data were obtained to confirm the theoretical predictions (P. G. Bendt and T. A. Oliphant, Phys. Rev. Lett. v. 6, 213, 1961; M. P. Kemoklidze and I. M. Khalatnikov, ZhETF, in press) that a region free of Onsager-Feynman vortices must be formed in He II rotating between two cylinders, and to check that there is no mutual friction between the superfluid and normal components in the region of potential rotation. The experiment had yielded for the thickness of the irrotational region a value much higher than

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ACCESSION NR: AP4019214

predicted by the theory (3 mm against 0.5 mm). The possibility of development of an irrotational region in a singly-connected volume, suggested theoretically by M. P. Kemoklidze and Yu. G. Mamaladze, (ZhETF, v. 46, 165, 1964) was also checked and better agreement with the theoretical prediction obtained. "The author takes the opportunity to express deep gratitude to E. L. Andronikashvili for stimulating interest in this work, as well as Yu. G. Mamaladze and M. P. Kemoklidze for discussing the results." Orig. art. has: 1 figure.

ASSOCIATION: Institut fiziki Akademii nauk Gruzinskoy SSR (Physics Institute, Academy of Sciences, Georgian SSR)

SUBMITTED: 06Aug63 DATE ACQ: 27Mar64 ENCL: 02

SUB CODE: PH NO REF SOV: 002 OTHER: 001

Card 2/2

ACCESSION NR: AP4025917 S/0056/64/046/003/0843/0844

AUTHOR: Bablidze, R. A.; Tsakadze, Dzh. S.; Chanishvili, G. V.

TITLE: Concerning the shift of the Lambda point in rotating liquid helium

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 46, no. 3, 1964, 843-844

TOPIC TAGS: liquid helium, Onsager Feynman vortex, Lambda point, Lambda point shift, liquid helium relaxation mechanism, helium I, helium II

ABSTRACT: To ascertain whether the retention of the Onsager-Feynman vortices in liquid helium whose temperature is raised above the λ point is due to a shift of the λ point or due to the relaxation mechanism predicted by E. L. Andronikashvili et al (ZhETF v. 46, 157, 1964), an experiment was set up to determine the λ-point shift by observing the discontinuity in the heating (or cooling) curve of rotating and stationary helium on passing through the λ point. The experiments were made at rotation speeds (0.057 — 0.66 sec^{-1}) higher than used by Andronikashvili (0.055 sec^{-1}) and were accurate to 5×10^{-4} K. It is concluded that with this

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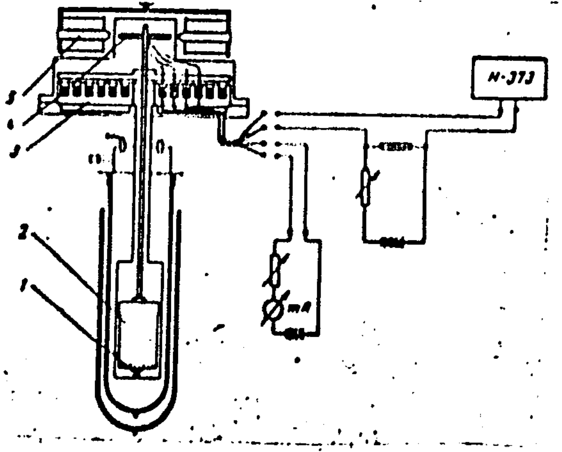
ACCESSION NR: AP4025917

ENCLOSURE: 01

Block diagram of set-up:
1 - resistance thermometer,
2 - organic-glass beaker
3 - mercury contact slip rings
4 - iron core
5 - rotating electromagnet



Card 3/3

ACCESSION NR: AP4037564 S/0056/64/046/005/1553/1555

AUTHOR: Tsakadze, Dzh. S.

TITLE: Kinetics of growth of the meniscus of a rotating liquid

SOURCE: Zh. eksper. i teor. fiz., v. 46, no. 5, 1964, 1553-1555

TOPIC TAGS: helium, liquid helium, helium I, helium II, meniscus formation, meniscus growth, rotating liquid helium, Onsager Feynman vortex filament, classical liquid, quantum liquid

ABSTRACT: The time dependence of the depth of the meniscus of rotating liquid helium was investigated for the purpose of establishing the laws governing the meniscus formation in quantum and classical liquids. The observations were made in a Perspex beaker rotated by a synchronous motor and a belt drive. The time dependence of the height of the meniscus was plotted in the range 1.57--2.16K in helium II and 2.25--3.25K in helium I (see Figs. 1 and 2 of Enclosure). Control [illegible]

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ACCESSION NR: AP4037564

surfaces that bound the liquid. "The author is grateful to E.L. Andronikashvili for stimulating interest in the work, and to Yu.G. Mamaladze and M.P. Kemoklidze for useful discussions." Orig. art. has: 3 figures.

ASSOCIATION: Institut fiziki AN GruzSSR (Institute of Physics, AN GruzSSR)

SUBMITTED: 30Sep63

ENCL: 02

SUB CODE: OP

NO REF SOV: 001

OTHER: 004

Card 2/4

ENCLOSURE: 01

ACCESSION NR: AP4037564

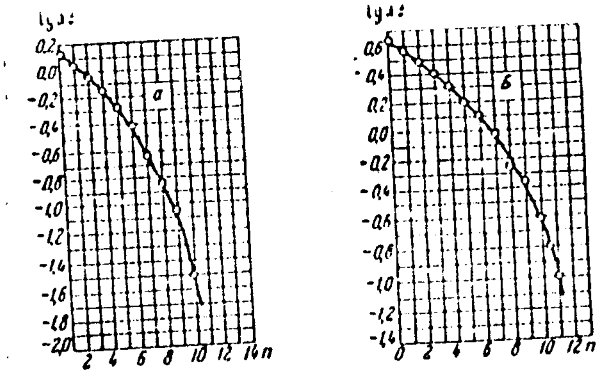

Fig. 1. Dependence of log Δz (logarithm of meniscus height) on n (number of measurements, spaced 15 sec apart) at T = = 1.57K: (a) ω_0 = 16.7 sec^{-1}, (b) ω_0 = 26.1 sec^{-1}.

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ACCESSION NR: AP4037564

ENCLOSURE: 02

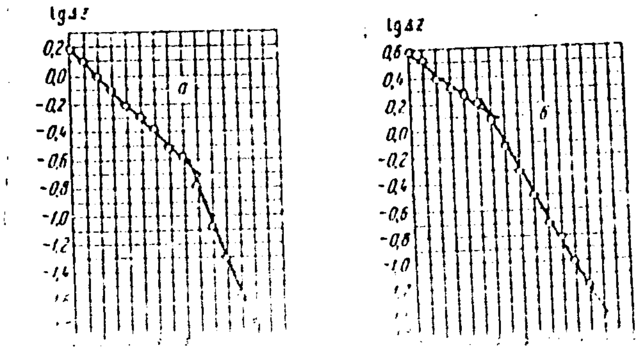


Fig. 2. Dependence of log Δz on n for rotating helium II:
(a) $\omega_0 = 16.7\ \mathrm{sec}^{-1}$, T = 3.23K; (b) $\omega_0 = 26.1\ \mathrm{sec}^{-1}$, T = 2.82K.

Card 4/4

L 9294-66 EWT(1)/EWT(m)/EWP(t)/EWP(b) IJP(c) JD/GG

ACC NR: AP5026407 SOURCE CODE: UR/0386/65/002/006/0278/0281

68

44,55 44,55

AUTHOR: Andronikashvili, E. L.; Tsakadze, D. S.

ORG: Institute of Physics, Academy of Sciences Georgian SSR (Institut fiziki Akademii nauk Gruzinskoy SSR)

44,55

27

TITLE: Dependence of the density of rotating liquid helium on the angular velocity

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 2, no. 6, 1965, 278-281

TOPIC TAGS: liquid helium, quantum liquid, vortex

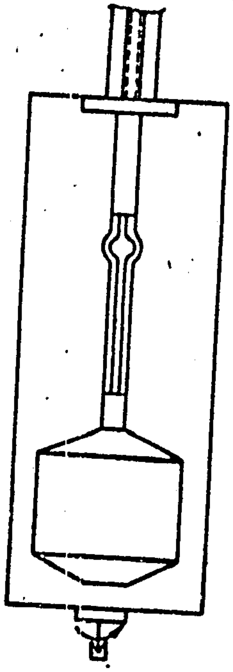
ABSTRACT: To ascertain the velocity dependence of the density of helium II, and to check on the assumption that the presence of vortex filaments "loosens up" rotating helium II, the authors undertook an experiment, in which a sensitive pycnometer was set in rotation (Fig. 1). The apparatus and procedure are described briefly. The instrument was sensitive enough to register changes in the sixth significant figure of the density. The measured dependence of the density of helium II on the rotary speed at constant temperature (Fig. 2) discloses the striking fact that when the helium II is twisted it becomes much denser, and the increase in density rises with the temperature and with the angular velocity. If helium-I is set in rotation at the same angular velocity, no change in pressure can be observed. It is concluded on this basis that some specific mechanism condensing the helium II exists. It is not connected with the presence of centrifugal pressure, but apparently with the

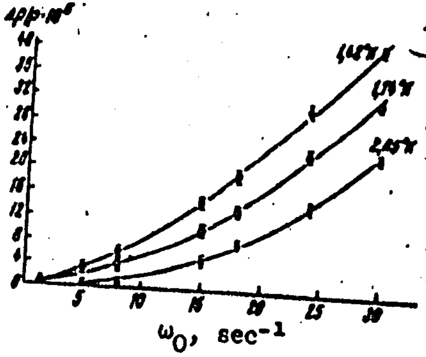
Card 1/2

L 9294-66

ACC NR: AP5026407

existence of quantized vortices of the Onsager-Feynman type. It is also reported that a jump was observed in the density of the liquid helium as it goes through the phase transition point, thus offering evidence that during rotation the HeII-HeI phase transition is of first and not of second order. Authors thank Yu. G. Mamaladze for participating in the discussion of the results. Orig. art. has: 2 figures.





3

Fig. 2. Density of He II vs. rotary speed at several constant temperatures.

21, 44, 55

Fig. 1. Diagram of pycnometer.

SUB CODE: 20/ SUBM DATE: 23Jul65/ ORIG REF: 000/ OTH REF: 001

80

Card 2/2

L 9816-66 EWT(l)/EWT(m)/EPF(n)-2/EWP(t)/EWP(b)/EWA(h)/ETC(m) IJP(c) JD/WW/GG

ACC NR: AP5027988 SOURCE CODE: UR/0386/65/002/007/0305/0307

44,55 44,55

AUTHOR: Tsakadze, D. S.; Shanshiashvili, L. G.

ORG: Tbilisi State University (Tbilisskiy gosudarstvennyy universitet)

TITLE: Concerning the rotation of helium II near the Lambda point

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. (Prilozheniye), v. 2, no. 7, 1965, 305-307

TOPIC TAGS: liquid helium, vortex, superfluidity

ABSTRACT: The purpose of the investigation was to check on J. R. Pellam's measurements (Proc. of the VII Intern. Conf. on Low Temp. Physics, p. 268, Univ. of Toronto, Canada, 1960; Phys. Rev. Lett. v. 5, 189, 1960) of the deflection of a Rayleigh disc in rotating liquid helium, where it was observed that the effect has a temperature dependence producing the impression that the helium I participates fully in the rotation, but only the superfluid component of helium II rotates. Since this interpretation of the experimental data contradicts the existing views on the nature of rotation of helium, the authors propose that in Pellam's experiment the Rayleigh disc served simultaneously as the mirror used to measure the deflection by reflecting a light ray. This was unavoidably accompanied by addition of energy to the helium II, giving rise to convection currents that distorted the velocity field of the rotating helium II. They have repeated Pellam's experiment, using an instrument essentially similar to his, but in which the Rayleigh-disc deflection could be measured with light reflected not only from the disc itself but also from a mirror located outside

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L 9816-66

ACC NR: AP5027988

the liquid. The Rayleigh disc employed was a thin rectangular mirror 0.46 mm thick, measuring 7.9 x 4.0 mm. When the Rayleigh disc was illuminated in the stationary instrument near the λ point, a weak deflection was observed in a direction opposite to that of the rotation. This confirms the assumption that Pellam's paradoxical result is caused by heat currents due to the illumination of helium II. There remains no doubt that near the λ point the liquid helium II rotates, on the average, as a unit. A more detailes study of the phenomenon is recommended. Authors thank Professor E. L. Andronikashvili for interest in the work and for a discussion of the results, and Yu. G. Mamaladze for useful discussions during the performance and interpretation of the experiment. Orig. art. has: 1 figure.

SUB CODE: 20/ SUBM DATE: 23Jul65/ OTH REV: 003

Card 2/2

L 22777-66 EWT(m)/EPF(n)-2/EWP(t)/EWA(h) IJP(c) JD/JG
ACC NR: AP6009716 SOURCE CODE: UR/0386/66/003/004/0173/0177

AUTHOR: Andronikashvili, E. L.; Bedbenova, D. S.; Politov, N. G.; Tsakadze, D. S.

40
39
13

ORG: Institute of Physics, Academy of Sciences, Georgian SSR (Institut fiziki Akademii nauk Gruzinskoy SSR)

TITLE: Scattering of cold neutrons 14 in irradiated KBr and NaCl crystals

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 3, no. 4, 1966, 173-177

TOPIC TAGS: neutron scattering, sodium chloride, potassium bromide, single crystal, Gamma irradiation, crystal defect

ABSTRACT: In view of the current interest in the scattering of neutrons in irradiated alkali-halide single crystals, the authors irradiated KBr and NaCl single crystals with gamma rays from the In-Ga radiation loop in the reactor of the Georgian Academy Physics Institute. The dose rate was 0.8 x 10^6 r/hr. Before irradiation the crystal was cooled and placed in the path of a monochromated beam of neutrons. The resolution was 25% in terms of the wavelength, which ranged from 1 to 12 Å. The maximum background was 0.08 neut/cm^2. The sample thicknesses (6.3 mm for KBr and 2.2 mm for NaCl) were optimal from the point of view of the procedure for measuring neutron transparency;

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the transmission was 0.6—0.9 in the indicated wavelength interval. To suppress the inelastic scattering of neutrons by thermal lattice vibrations, the experiment was carried out at liquid-air temperature. The intensity of the neutron beam passing through the irradiated crystal was compared with the intensity through the same crystal prior to irradiation. Neutron scattering maximum was observed at wavelengths between 5 and 8 Å. The height of the maximum increased in proportion to the irradiation time. A similar curve was obtained also for 20 hours' exposure, but the measurement error was quite large. The scattering of neutrons by defects in irradiated crystals is even more strongly pronounced in NaCl crystals. The preliminary experiments have shown that at wavelengths corresponding to the maximum on the curve, the intensity of the neutrons scattered at an angle increases somewhat. To check whether the observed effect is connected with the occurrence of color centers in the irradiated single crystals of the alkali-halide salts, the concentration of F and M centers was measured in the wavelength interval 220—1000 nm. It was found that the maximum concentration of F-centers is 7 x 10^{17} cm^{-3}, and the number of M centers is much lower. Such small concentrations cannot explain the observed change in neutron transmission. The authors thank Professor Yu. M. Kagan for interest in the work and valuable discussions. Orig. art. has: 3 figures.

[02]

SUB CODE: 20/ SUBM DATE: 03Jan66/ ORIG REF: 002/ ATD PRESS: 4229

L 22116-66 EWT(d)/EWT(1)/EWT(m)/EPF(n)-2/EWP(t) IJP(c) JD/[illegible]/GG

ACC NR: AP6004916 SOURCE CODE: UR/0056/66/050/001/0046/0050

AUTHORS: Andronikashvili, E. L.; Bablidze, R. A.; Tsakadze, Dzh.S.

ORG: Institute of Physics, Academy of Sciences, Georgian SSR
(Institut fiziki Akademii nauk Gruzinskoy SSR)

53
51
31
B

TITLE: Damping of second sound in rotating helium on going through the phase transition temperature

[illegible]

TOPIC TAGS: liquid helium, quantum liquid, vortex, rotation, resonator, sound propagation, relaxation process

ABSTRACT: The purpose of the study was to investigate the formation of quantized Onsager-Feynman vortices in rotating helium, which has not been sufficiently studied to date, particularly in those cases when the vortices are formed in rotating helium going through the phase-transition temperature. For the purpose of investigating the kinetics of the vortex formation, the authors constructed a resonator

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ACC NR: AP6004916

2

in which second sound could propagate in a radial direction. A second axial resonator was constructed, in which the second sound could propagate along the axis of rotation. The experiments have shown that in the immediate vicinity of the phase transition point the rotating helium II becomes foglike, as a result of uniform distribution of vortex nuclei. It is deduced from the experiments that initially there is formed an isotropic mass of vortex nuclei, which gradually become aligned into a system of vortices oriented along the axis of rotation. The relaxation times were measured for different rotating speeds and for different degrees of supercooling, and it is concluded that the relaxation time of the classical type of motion in a rapidly rotating quantum liquid is of the same order as the time of formation of the quantized Onsager-Feynman vortices at large angular velocities. The authors thank Yu. G. Mamaladze for a discussion of the results and N. S. Gavrilidi for help with the experiments. Orig. art. has: 4 figures and 1 formula.

SUB CODE: 20/ SUBM DATE: 06Aug65/ ORIG REF: 003/ OTH REF: 001

Card 2/2 PK

L 22117-66 EWT(l)/EWT(m)/EEC(k)-2/T/EWP(t)/EWP(k) IJP(c) WG/JD

ACC NR: AP6004917 SOURCE CODE: UR/0056/66/050/001/0051/0054

AUTHORS: Andronikashvili, E. L.; Gudzhabidze, G. V.; Tsakadze, Dzh. S.

ORG: Institute of Physics, Academy of Sciences Georgian SSSR (Institut fiziki Akademii nauk Gruzinskoy SSR); Tbilisi State University (Tbilisskiy gosudarstvennyy universitet) 67 60 B

21

TITLE: Relaxation of the Onsager-Feynman vortices when rotating helium II is heated above the phase-transition temperature

21

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 50, no. 1, 1966, 51-54

TOPIC TAGS: liquid helium, quantum liquid, vortex, rotation, critical point, relaxation process, temperature dependence

ABSTRACT: The decay of vortex lines in the superfluid component of rotating helium II, which occurs upon transition to helium I, was investigated by the oscillating disc method. Although it was expected from theoretical considerations that the vortex damping would appear at the phase transition temperature, the experiments have

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ACC NR: AP6004917

shown that the damping of the disc remains unchanged in character for a prolonged time interval even above this temperature, provided the phase transition takes place in a rotational state. It is deduced therefore that the decay of the vortex filaments takes place in the [illegible] of a three [illegible] in the first [illegible] [illegible] helium II [illegible] the [illegible] in helium I. The vortices then become detached from the disc surface and the damping becomes even lower than expected for helium I under the given conditions. Finally, during the third stage of relaxation, the expected damping stable value is gradually attained. Principal attention was paid to the duration of the first stage (18 minutes), whose dependence on the velocity of rotation, temperature and degree of roughness of the disc is discussed. It is suggested that the prolonged existence of the vortices in helium I and their subsequent decay may be due to some decrease in the rate of motion of the liquid inside the vortex, too small to be measured. The authors thank Yu. G. Mamaladze for interesting discussions of the results. Orig. art. has: 2 figures and 5 formulas.

SUB CODE: 20/ SUBM DATE: 06Aug65/ ORIG REF: 006/ OTH REF: 002

Card 2/2 BK

L 22118-66 EWT(1)/EWT(m)/EEC(k)-2/T/EWP(t)/EWP(k) IJP(c) WG/JD

ACC NR: AP6004918 SOURCE CODE: UR/0056/66/050/001/0055/0057

54
52
B

AUTHORS: Gudzhabidze, G. V.; Tsakadze, Dzh. S.

ORG: Tbilisi State University (Tbilisskiy gosudarstvennyy universitet); Institute of Physics, Academy of Sciences, Georgian SSR (Institut fiziki Akademii nauk Gruzinskoy SSR)

21

TITLE: Relaxation process related to temperature changes in rotating helium II

21

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 50, no. 1, 1966, 55-57

TOPIC TAGS: liquid helium, quantum liquid, temperature dependence, vortex, rotation, liquid property, relaxation process

ABSTRACT: This is a companion to the preceding paper in the same source (ZhETF v. 50, 51, 1966; Accession AP6004917), and is devoted [illegible]

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ACC NR: AP6004918

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damping of axial oscillations of a rough disc which take place about the disc axis and are concentric with the rotation of the liquid. The apparatus and the measurement procedure were described in detail earlier (ZhETF v. 46, 1, 1964). Unlike the results of similar measurements under conditions of phase transformation in rotating liquid, no stage during which the initial damping is completely conserved has been observed, and the change in damping begins simultaneously with the instant of the temperature change. The results are compared with those of the companion paper and it is suggested that the possible reason for the discrepancy is that the vortices oscillate much more intensely when their slipping against the disc is minimal, as is the case in the present experiments. The authors thank E. L. Andronikashvili for suggesting the topic and a discussion of the results, and Yu. G. Mamaladze for fruitful discussions. Orig. art. has: 2 figures

SUB CODE: 20/ SUBM DATE: 06Aug65/ ORIG REF: 004/ OTH REF: 001

Card 2/2 BK

[illegible]

([illegible] fiziki Akademii nauk [illegible])

TITLE: Some features of the twisting of quantum and classical liquids 2'

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 50, no. 1, 1966, 58-61

TOPIC TAGS: liquid helium, quantum liquid, vortex, rotation, fluid dynamics

ABSTRACT: This is a continuation of earlier work (ZhETF v. 46, 1563, 1964), dealing with differences in the depth of the meniscus produced in helium II on one hand, and helium I and water on the other. In the present investigation the measurements are repeated and the depth is measured not visually, as in the first study, but by photography. The frequency of the measurement is also changed from every 15 seconds to every 3 seconds. The photography method 2

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L 22119-66

ACC NR: AP6004919

4

has made it possible to study the time dependence of the depth of the meniscus in greater detail. The results confirm that the turbulent twisting of quantum and classical liquids differs appreciably and a qualitative explanation of the twisting of the quantum liquid is proposed on the basis of the Onsager-Feynman theory of quantum vortices. The authors thank E. L. Andronikashvili for stimulating interest in the research, Yu. M. Kagan and Yu. G. Mamaladze for discussions of the results, and the members of the Second Baku Colloquium on Superfluids and Superconductivity Problems for useful discussions. Orig. art. has: 8 figures and 1 formula.

SUB CODE: [illegible] SUBM DATE: [illegible] ORIG REF: [illegible] OTH REF: [illegible]

L 04073-67 EWT(m)/EWP(t)/ETI IJP(c) JD

ACC NR: AT6026357 SOURCE CODE: UR/3208/65/000/001/0003/0050

35

B+1

AUTHOR: Tsakadze, D. S.

ORG: none

TITLE: Three dimensional anisotropy of the viscous properties of rotating helium II

21

SOURCE: AN GruzSSR. Institut fiziki. Fizika nizkikh temperatur (Low temperature physics), no. 1. Tiflis, Izd-vo Metsniyereba, 1965, 3-50

TOPIC TAGS: anisotropic medium, helium, gas viscosity

ABSTRACT: The article is of the review type, based mainly on studies of the properties of helium II, carried out and published by the Georgian school of physicists, founded and headed up by Professor E. L. Andronikashvili. Emphasis is placed on the early work of P. L. Kapitsa and L. D. Landau in this field. After a general review of the underlying theory, the article devotes a section to a mathematical treatment of the appearance of shear elasticity in rotating helium II. Data taken from the literature are correlated in a series of curves. The next section treats the appearance of "vortical friction" in rotating helium II. This section includes a diagram of the experimental apparatus used by

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L 04073-67
ACC NR. AT6026357

(C)

[illegible] and a curve showing the results. The main body of the article is devoted to three dimensional anisotropy of the viscous properties of rotating Helium II. It gives a block diagram of the experimental apparatus and details of the main components thereof: the amplifier, the chronometer, and the sonic frequency generator. A treatment is given of the damping of a disk which is carrying out axial torsional vibrations in rotating helium II; this is followed by an analogous treatment of the case of a hollow cylinder. The results show a completely unusual dependence of the viscous properties of a liquid on the position of the measurement plane, and on the direction of its motion with respect to the axis of rotation, which demonstrates the existence of three dimensional anisotropy in rotating helium II. Orig. art. has: 5 formulas, 28 figures and 2 tables.

SUB CODE: 20/ SUBM DATE: none/ ORIG REF: 031/ OTH REF: 014

kh

Card 2/2

ACC NR: AP6037063

SOURCE CODE: UR/0056/66/051/005/1344/1347

AUTHOR: Andronikashvili, E. L.; Tsakadze, D. S.

ORG: Institut of Physics, Academy of Sciences, Georgian SSR (Institut fiziki Akademii nauk Gruzinskoy SSR)

TITLE: Condensation of rotating helium II and the jump of its density at the phase transition point

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 51, no. 5, 1966, 1344-1347

TOPIC TAGS: liquid helium, quantum liquid, low temperature research, phase transition, second order phase transition, critical point

ABSTRACT: To determine the velocity dependence of the density of helium II, the authors have undertaken an experiment in which sensitive pycnometers are set in rotation. The pycnometer is briefly described and a formula for the increase in the density as a function of the level difference of the pycnometer is presented. The measurements have shown that the lower the temperature the greater the density of the rotating helium II, and that this phenomenon cannot be attributed to centrifugal pressure. A special investigation in the temperature interval 2.14 - 2.16K (straddling the phase-transition point), using a fixed amount of liquid in the pycnometer, has shown the density to experience a discontinuity characteristic of a first-order phase transition, amounting to 0.02% of the density of the liquid. It is concluded

Card 1/2

TSAKADZE, L.O., kand.med.nauk (Zhigulevsk, Kubyshevskoy oblasti, ul. Pushkina,
d.34, kv.6)

Unusual foreign body in the rectum. Vest.khir. 80 no.5:116-117 My '58
(MIRA 11:7)

1. Iz bol'nitsy Kuybyshevgidrostroya, g. Zhigulevsk.
(RECTUM, foreign bodies
iron bar (Rus))

SOKOLOV, S.S. (Leningrad, Khersonskaya ul.,d.2/9,kv.37); TSAKADZE, L.O.;
KARATOVA, V.A.

Transcutaneous catheterization of the heart cavities and aorta by the Seldinger technique. Vest.khir.90 no.2:52-57 F'63.
(MIRA 16:7)

1. Iz gospital'noy khirurgicheskoy kliniki (zav.- prof. F.G. Uglov) 1-go Leningradskogo meditsinskogo instituta imeni Pavlova.
(CARDIAC CATHETERIZATION)

KARTAVOVA, V.A.; SOKOLOV, S.S.; TS[illegible]AD[illegible] [illegible], MIRSALOVA, R.A.

Contrast investigation of the heart and large vessels by the method of direct punctures. Trudy Inst. klin. i eksper. kard. AN Gruz. SSR 8:577-583 '63. (MIRA 17:7)

1. Klinika gospital'noy khirurgii I-go Leningradskogo meditsinskogo instituta.

TSAKADZE, L.O., kand.med.nauk (Zhigulevsk, Kuybyshevskoy oblasti, ul. Pushkina, d. 34, kv. 6)

Anatomical possibilities for excision of parotid gland tumors with preservation of the facial nerve [with summary in English]. Vest.khir. 81 no.12:6-12 D '58. (MIRA 12:2)

1. Iz 1-y kafedry khirurgii (zav. - prof. N.N. Petrov) Leningradskogo ordena Lenina instituta usovershenstvovaniya vrachey imeni S.M. Kirova i kafedry operativnoy khirurgii i topograficheskoy anatomii (nach. - prof. A.N. Maksimenkov) Voyenno-meditsinskoy ordena Lenina akademii imeni S.M. Kirova.

(PAROTID GLAND, neoplasms
surg., excis. with preservation of facial nerve
(Rus))

TSAKADZE, L. O.

TSAKADZE, L.O., kand.med.nauk (Kuybyshevskaya oblast', g.Zhigulevsk, ul. Pushkina, d.34, kv.6)

Torsion of the greater omentum. Vest.khir. 79 no.7:125-126 Jl '57.
(MIRA 10:10)

1. Iz bol'nitsy Kuybyshevgidrostroya, g. Zhigulevsk.
(OMENTUM, diseases,
torsion of greater (Rus))

UGLOV, F.G., prof.; ZUBTSOVSKIY, V.N.; KARTAVOVA, V.A.; TSAKADZE, L.G.;
NIKITINA, N.I.

Late results of palliative surgery in tetralogy of Fallot.
Kardiologiia 5 no.2:35-40 Mr-Ap '65. (MIRA 18:[illegible])

1. Gospital'naya khirurgicheskaya klinika (zav. - prof. F.G. Uglov) 1 Leningradskogo meditsinskogo instituta imeni I.P. Pavlova.

TSAKADZE, L.O. (Leningrad, K-61, ul. Skorokhodova, d.32, kv.40); KARTAVOVA,
V.A.; ZUBTSOVSKIY, V.N.

Methods of aortography and their diagnostic value. Grud. khir. 6
no.4:57-63 Jl-Ag '64. (MIRA 18:4)

1. Klinika gospital'noy khirurgii (zav. - chlen-korrespondent AMN SSSR, prof. F.G.Uglov) i kafedra operativnoy khirurgii i topograficheskoy anatomii (zav. - prof. M.A.Sreseli) I Leningradskogo meditsinskogo instituta imeni Pavlova.

TSAKADZE, L.O.

Leiomyoma of the small intestine. Vest. khir. 84 no. 7:128-130 Je '60.
(MIRA 14:1)

(INTESTINES—TUMORS)

C[illegible]	[illegible]
CATEGORY	Plant Diseases. General Problems. G
ABS. JOUR.	Ref Zhur-Biologiya, No. [illegible], 1959, No. 15887
AUTHOR	Tsakadze, T.
INST.	Inst. of Plant Protection AS Georgian SSR
TITLE	Study of Parasitism of Cytospora leucostoma [illegible] on Stone Fruit Trees.
ORIG. PUB. :	Tr. In-ta zashchity rast. AN GruzSSR, 1956, 11, 209-219.
ABSTRACT	: The investigations revealed the parasitic character of 2 species of the Cytospora genus (Cyt. leucostoma and Ct. cincta), which caused the death of stone fruit trees.

CARD: 1/1

TSAKADZE, T.A.

Effect of some bacterial filtrates, which cause gummose of stone fruits, on the living cells of the peach. Soob. AN Gruz. SSR 33 no.1:205-210 Ja '64. (MIRA 17:7)

1. Institut zashchity rasteniy Gruzinskoy SSR, Tbilisi. Predstavleno akademikom L.A. Kanchaveli.

TSAKADZE, T.A.

Oxidation-reduction reactions in gummateous tissues in stone fruits. Soob.AN Gruz.SSR 21 no.2:195-200 Ag '58.
(MIRA 12:6)

1. Ministerstvo sel'skogo khozyaystvo GruzSSR, Institut zashchity rasteniy, Tbilisi. Predstavleno akademikom L.A. Kanchaveli.

(Fruit--Diseases and pests)
(Gummosis)

TSAKADZE, T.A.

Effect of the toxin of Cytospora leucostoma on plant cells.
Biul.Glav.bot.sada no.35:75-77 '59. (MIRA 13:2)

1. Institut zashchity rasteniy Akademii sel'skokhozyaystvennykh nauk GruzSSR i Glavnyy botanicheskiy sad AN SSSR.
(Stone fruit--Diseases and pests)
(Toxins and antitoxins)
(Georgia--Fungi, Phytopathogenic)